

REMARKS

Claims 13-19 remain in this application, while claims 1-12 are now canceled. Reconsideration of the application is requested.

The claim amendments above are made following consideration of the comments provided by the Examiner in the first paragraph on page 2 of the Office Action. All claims remaining in this application are in proper form.

The rejection under 35 U.S.C. § 112, second paragraph, is moot, as claims 1-12 are canceled. The rejection of claims 1-12 under 35 U.S.C. § 102(b) is moot as well.

Independent claim 13 is rejected under 35 U.S.C. § 103(a), along with dependent claims 14-19, as unpatentable over U.S. Patent 5,277,301 to Fenty in view of U.S. Patent 3,783,777 to Killen et al. Reconsideration is requested.

The Fenty patent concerns a freezer conveyor utilizing a chain driven assembly but, as the Examiner acknowledges, does not disclose multiple chain drives. One characteristic of the present invention, however, is that the inside and outside chains are respectively looped over inside and outside sprockets, which are driven by a single motor via a drive shaft. The chains are endless chains respectively allowing the transfer pieces of the invention to advance to the spiral and then return to the sprockets. A speed change gear mounted in the drive shaft serves to keep the inside sprocket rotation speed slower than that of the outside sprocket. The ratio of the number of inside gear teeth to the number of outside gear teeth is also preferably determined so as to coincide with the respective curvature radii ratio.

By constructing the installation forming the subject matter of the present invention as described, the inside and outside chains, forming respective endless chains, may be driven with a single motor via the drive shaft. The speed change gear drive, mounted in the drive shaft as defined, permits the rotation speed of the inside sprocket to be lower than that of the outside sprocket, so that a single drive motor can be used. As the inside and outside chains are simultaneously driven by the single motor and the inner and outer side spacer members of the transfer conveyor can be moved simultaneously at the proper speed ratio, the transfer conveyor structure is quite simple, and it is possible to install the motor outside of the insulated room and connect that motor to the driving device in order to properly drive the conveyor with the drive shaft, thereby facilitating sanitary operation.

The Killen et al. conveyor includes an inside gear or sprocket 85 and an outside sprocket 87 mounted adjacent to a rotation axis defined by a drive shaft of the motor 11. An axis of a speed change gear drive or countershaft 61 is parallel to the Killen et al. rotation axis. It is thus respectfully submitted that the Fenty and Killen et al. disclosures, taken as a whole, fail to suggest a speed change gear drive mounted in the drive shaft extending between rotation axes of inside and outside sprockets to reduce the rotation speed of the inside sprocket so that it is lower than the rotation speed of the outside sprocket as currently amended claim 13 reflects. By way of the structure defined by claim 13, in which the speed change gear drive is mounted in the drive shaft disposed between the inside and outside sprockets, it is possible to have a spirally-piled conveyor in

which inside and outside endless chains are advanced smoothly and simultaneously, but at different advancing speeds, by a single motor.

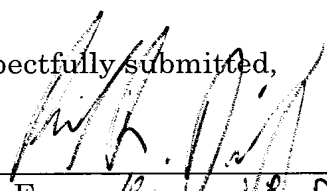
Claim 13 as it appears above is patentable for reasons discussed. The rest of the claims remaining in this application are dependent claims and are patentable as well. With respect to claim 16 in particular, moreover, the Examiner's conclusion set forth in the paragraph spanning pages 6 and 7 is noted but is inappropriate. For a spirally-piled conveyor, in which the inside and outside chains advance smoothly because of curvature differences while having different advancing speeds, it is significant to have the coincident ratios particularly recited in claim 16.

All of the claims remaining in this application are now considered patentable, and the application is submitted to be in allowable condition. If there are any questions regarding this Reply or the application in general, a telephone call to the undersigned would be appreciated since this should expedite the prosecution of the application for all concerned.

If necessary to effect a timely response, this paper should be considered as a petition for an extension of time sufficient to effect a timely response. Please charge any deficiency in fees or credit any overpayments to Deposit Account No. 05-1323 (Docket #037297.55537US).

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Respectfully submitted,


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